

A NEW SPECIES OF SCULPTURED, CONIFER-
INHABITING *CHRYSOBOTHRIS* FROM NEVADA AND
CALIFORNIA (COLEOPTERA: BUPRESTIDAE)

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ABSTRACT

Chrysobothris barri n. sp., occurring from central Nevada to southern California, is described, and considerable detail is given to variation and comparison with the closely related *C. ludificata* Horn.

During the early summer of 1960, a series of what was thought to be *Chrysobothris ludificata* Horn was collected from pinyon pine slash in the Shoshone Mountains of central Nevada. Subsequently, it was found to represent a new species. Since it falls into a group in which the members are often extremely difficult to define, special attention is given to details of description, variation, and comparison.

I am indebted to the following individuals for loan of their specimens which pertained to this study: W. F. Barr (University of Idaho), F. M. Beer, D. S. Verity and G. C. Walters.

CHRYSOBOTHRIS BARRI WESTCOTT, NEW SPECIES
(Fig. 1-5)

MALE: Moderately elongate, slightly convex above, black, moderately shining; front of head bright green with light coppery reflections which increase slightly on vertex; pronotum with slight bronzy reflections in depressed areas, purplish bronze reflections at sides; elytra copperish and greenish bronze in depressed areas; ventral surface black with strong purplish, coppery, and bronzy-green reflections.

Head with a pair of smooth, rounded callosities on middle of front and a well developed, broad, smooth longitudinal carina on vertex; surface with rather coarse, irregular, shallow, almost confluent punctures, rather densely clothed with moderately long, decumbent hairs; clypeus broadly, rather deeply, angularly emarginate at middle, truncate laterally; antennae with dorsal surface of segments 1-4 almost entirely bright green, becoming entirely purplish-brownish on segments 7-11, strongly serrate from fourth segment, third segment scarcely serrate, twice as long as second segment, about one and three-quarters times longer than fourth segment, slightly shorter than fourth and fifth combined, segments 7-10 one and one-half to two times wider than long, ultimate segment one and one-third times wider than long, outer margins broadly rounded, of 5-6 more narrowly rounded, 4 subtriangular.

Pronotum one and four-fifths times wider than long, widest at basal third, slightly wider at base than apex; sides irregularly subparallel, strongly converging apically and weakly so at base; lateral margin as seen from below side moderately wide, wider basally, weakly arcuate, strongly

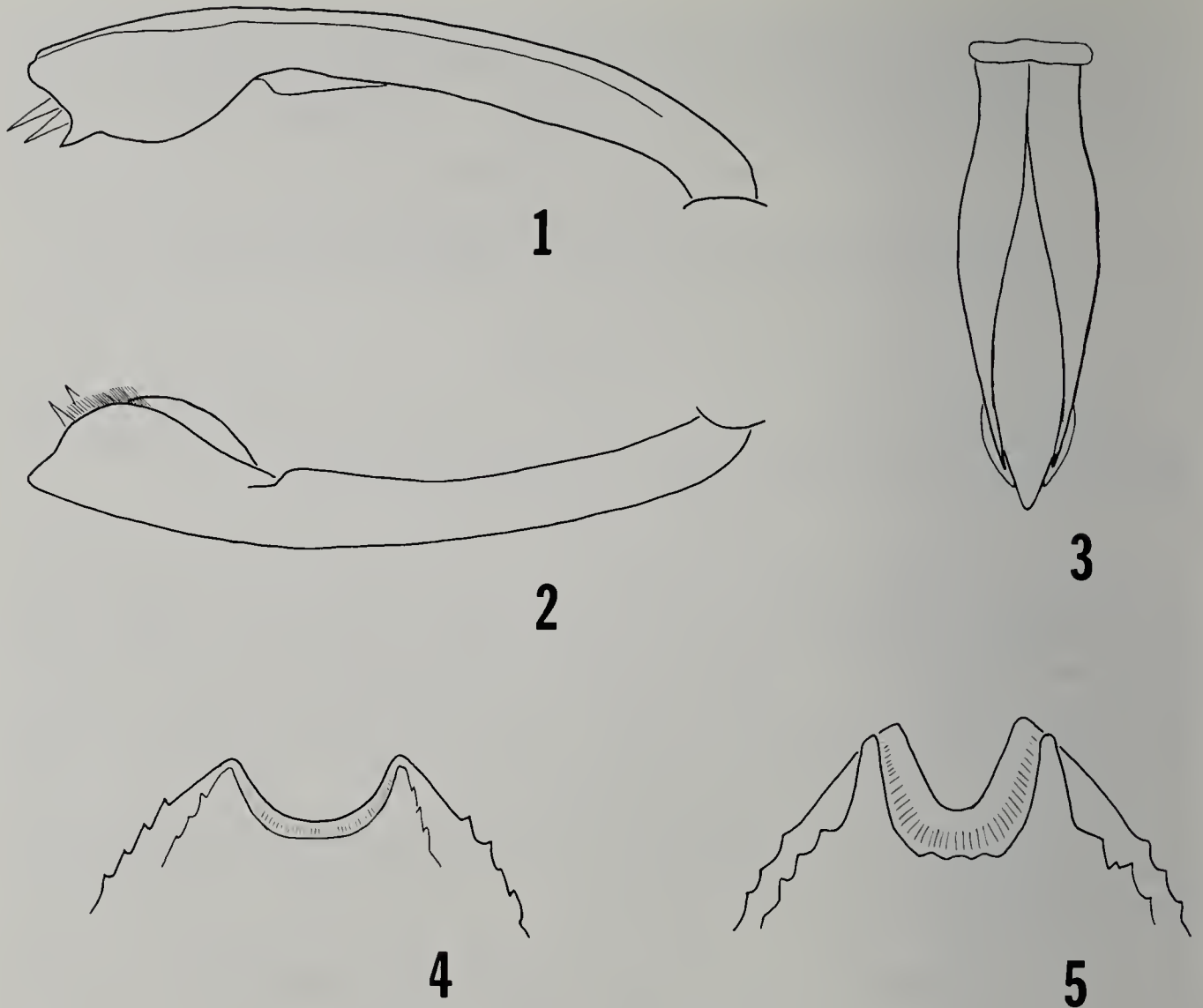


Fig. 1-5: *Chrysobothris barri* n. sp. 1) protibia of male, rear aspect. 2) same, front aspect. 3) male genitalia, dorsal aspect. 4) last visible abdominal sternite of male.) 5) same of female.

so on apical seventh; anterior margin broadly, very shallowly emarginate, subtruncate medially; posterior margin with median lobe very slightly produced and truncate; surface irregular, with a pair of wide, smooth callosities on either side of middle which are joined apically and basally, delimiting a moderately narrow, deeply punctate, longitudinally carinate depression, and on each side irregularly joined near middle with a wide submarginal longitudinal callosity which is interrupted by heavily punctured areas and delimited mesad by moderately indicated subbasal and subapical depressions, antero-laterad by a broader, more distinct depression, densely, coarsely, sometimes confluent punctate, rather inconspicuously clothed with a few short to moderately long, suberect to subrecumbent, white hairs along sides and extreme base which are more numerous and conspicuous on hind angles.

Elytra distinctly wider than pronotum, nearly twice as long as wide; base of each elytron quite semicircularly rounded; sides subparallel from about basal eighth to slightly behind middle, then gradually, arcuately rounded to separately, narrowly rounded apices; lateral margins very feebly serrate from just behind middle, serrations becoming more conspicuous slightly before apex, never strong; basal depressions deep, rounded; humeral depressions shallower, oblique; each elytron with 4 more

or less prominent, smooth, longitudinal costae which adjoin and/or merge variably with numerous, irregular, smooth callosities, intervening areas densely, moderately coarsely punctate; sutural costa entire, straight, extending from just behind base to apex, strongly elevated posteriorly; discal costa subparallel to sutural costa, extending from base to near apex where it joins sublateral costa on right elytron, narrowly separated on left elytron, interrupted in depressed punctured area in front of middle; humeral costa apparently arising from sublateral costa shortly behind umbone, appearing diverted or broken just beyond middle, joining discal costa at apical fourth; sublateral costa entire, somewhat irregular, extending from umbone practically to apex, beyond association with discal costa; vestiture consisting of very short, extremely inconspicuous, suberect hairs which are practically nonexistent on disc, very sparsely placed on narrow basal portion, along sides and between sutural margin and costa, becoming more frequent near apex.

Prosternum coarsely, moderately densely punctate at middle, rather sparsely clothed with short to moderately long whitish hairs, which are longer and more densely placed laterally; anterior margin broadly, shallowly rounded on middle, with a broad, very well developed median lobe.

Abdomen beneath scarcely convex to somewhat flattened at middle, rather finely, sparsely punctate at middle, punctures more densely placed laterally and larger on sides of first sternite, pubescence short, inconspicuous at middle, becoming much longer and more dense towards sides; lateral callosities smooth, well developed on second to fourth visible sternites, less prominent on first and last; last visible sternite with lateral margins rather feebly serrate, entire near apex, hind margin broadly, almost semi-circularly emarginate at apex, submarginal ridge very feebly developed.

Legs with femora and tibiae with coppery-purplish-bluish reflections, tarsi purplish-bluish, outer surface of profemora with strong green reflections; profemur with a well developed, obtusely triangular tooth which is irregularly, feebly denticulate on outer margin; protibia moderately arcuate, inner margin slightly expanded at apical third then abruptly, rather deeply constricted, subapical dilation broadly, rather evenly rounded to just before apex; mesotibia about as arcuate as protibia, slightly expanded apically, inner surface with a small, narrow, broadly rounded, longitudinal dilation on middle at apical fourth; metatibia straight.

Length, 11.5mm; width, 4.6mm.

FEMALE: Differs from male as follows: Front of head, antennal segments 1-3, and outer surface of profemora predominantly purplish-coppery; abdomen beneath more convex, particularly laterally, last visible sternite with a rather well developed, strongly serrate submarginal ridge which is rather narrowly, semi-circularly emarginate at apex, hind margin with a deep, U-shaped emargination; pro- and mesotibiae unmodified.

Length, 12.2mm; width, 4.9mm.

HOLOTYPE MALE AND ALLOTYPE FEMALE (California Academy of Sciences) and 17 male and 6 female paratypes from NEVADA: Shoshone Mts., Ichthyosaur St. Mon., 21-24-VI-1960, R. L. Westcott, *Pinus monophylla* slash, 7000 ft. Additional paratypes, all from CALIFORNIA: 1 male, Panamint Mts., Wild Rose Can., 22-VI-1958; 1 male, San Bernardino

Co., 2 mi NE Wrightwood, 20-III-1960, pinyon pine, D. S. Verity; 1 male, 6 females, Riverside Co., Pinyon Flat, 19-IV-1959, 1-V-1960, *Pinus monophylla*, D. S. Verity, R. L. Westcott; 5 males, 3 females, Wrightwood, 10-VII-1966, 3-VI-1967, on pine; 20-V-1967, beating pine; 1-VII-1967, *Pinus monophylla*, G. C. Walters. Paratypes deposited in the collections of Los Angeles County Museum of Natural History, U. S. National Museum, W. F. Barr, F. M. Beer, J. M. Davidson, G. H. Nelson, D. S. Verity, G. C. Walters and the author. Most, if not all, of the specimens from Pinyon Flat, California, were taken on stumps of recently cut trees. Since all but 1 were females, this may be at least partially indicative of their oviposition habits.

VARIATION: This species exhibits considerable variation, yet due to its sculptured configuration, it appears quite uniform to the eye. However, most California specimens appear less finely sculptured than those from the type locality. In males the front of the head may exhibit strong coppery reflections and the vertex is usually coppery, whereas in females the front may be narrowly bordered by green. Coppery reflections almost always predominate on the depressed, punctured areas of the elytra. The third antennal segment varies from scarcely to not at all serrate. The apical segments are slightly variable in width, appearing more chunky in most females from Nevada. They vary from 1.5 to (rarely) just over 2 times wider than long, except for the ultimate segment which is usually less than 1.5 times wider than long. The basal antennal segments are usually bright green, but often there is a coppery overcast, particularly on the scape. One specimen examined had the metallic coloration distinctly indicated on segments 7 and 8.

The configuration of the pronotal surface is quite uniform. Variation exists in the shape and extent of the callosities, particularly the lateral ones, and in the depth of depressions. The median longitudinal carina, though usually clearly defined, is vaguely indicated in a few specimens. It appeared obsolete or was absent on most of the specimens examined from California.

The very nature of the elytral sculpturing creates numerous minor differences in configuration, which exist not only between individuals but between elytra on the same specimen. This phenomenon, in my observation, is true for all members of this species group. The greatest and most readily definable variation occurs in the costae. The sutural costa is always entire, but occasionally terminates slightly before the elytral apex. The discal costa may be entire or widely interrupted and, apically, irregular. The humeral costa is clearly defined basally, but is often irregular and occasionally obliterated apically. The sublateral costa is rarely narrowly interrupted and/or poorly defined apically, may or may not adjoin with the discal costa at the apical fourth of the elytron and occasionally ends in the sutural costa.

All specimens available for study have a very well developed median lobe on the prosternum, which exhibits slight variation in width and is usually slightly sinuate. This character is highly variable, to the point of being either present or absent, in some species of this group.

The abdominal callosities are usually well developed, but may be punctured or not prominent, particularly on the first and last visible sternites,

and the side margins of the latter vary from irregularly, feebly serrate to rather evenly, strongly serrate. In the female, the sides of the U-shaped emargination at the apex of the hind margin varies from parallel to convergent. The submarginal ridge is moderately to well developed and indistinctly to distinctly serrate, while in the male this ridge is usually weakly developed, occasionally moderately developed and serrate. In the female the area between the bases of the emarginations of the submarginal ridge and hind margin varies from declivous to vertical.

The rounded protibial dilation of the male is somewhat variable in development and contour and may end well back of, or extend to, the tibial apex. In the former case it resembles that of *C. ludificata*. The mesotibial dilation may be scarcely evident on some specimens. Specimens range in length from 10.5 to 12.5mm.

COMPARISON: *Chrysobothris barri* clearly is most closely related to *C. ludificata* and will run to that species in Fisher's (1942) key. From the series at hand of 48 males of the latter species, from Arizona, Nevada, and Utah, all males of *C. barri* were separable by the color of the front of the head, which varies from bright green with light coppery reflections to (rarely) predominantly bright coppery, rather than predominantly brassy or brassy green as found in *C. ludificata*. The metallic coloration of the antennae is rarely evident beyond the seventh segment (usually not prominent beyond the sixth), never extending past the eighth (except for 1 California specimen, on which it is vaguely indicated on the ninth segment). The last 2 segments are never metallic. In *C. ludificata* the brassy colorations always extends at least to the ninth segment and is strongly evident to there, although the outer segments may become quite coppery. The last 2 segments always bear metallic, mostly coppery, reflections which are usually strongly indicated. The outer antennal segments of *C. ludificata* are broader and more widely separated and though the width/length ratio is only slightly higher than in *C. barri*, it appears much greater, particularly on the last 3 segments. Remaining doubts as to identity would be dispelled quickly upon examining the genitalia, in which the parameres of *C. ludificata* are much more strongly constricted beyond the middle, becoming parallel along the apical fifth. In most cases the shape of the protibial dilation will serve well to separate the 2 species.

Except for the (apparently) allopatric distribution of *C. barri* and *C. ludificata*, the females of these species are rather difficult to separate. Based upon material examined and a literature review, their nearest proximity is 160 miles (between the type locality of *C. barri* and Mendha, Lincoln County, Nevada). Records of *C. ludificata* from California appear to be in error; some may refer to *C. barri*. Thirty-five females of *C. ludificata* were studied from the same localities as the males. The outer antennal segments of *C. ludificata* are wider than those of most specimens of *C. barri* seen from the type locality. However, specimens of the latter from southern California have the antennal segments as wide or wider. The submarginal ridge of *C. barri* usually terminates in a well developed, often thorn-like tooth, which is distinctly larger (in all but 1 specimen studied) than any of the other serrations. This is usually not the case with *C. ludificata*, though it may be difficult to ascertain without a series of specimens. The only uniformly reliable anatomical character found

for separation is the nature of the front margin of the prosternum. In *C. barri* it is distinctly, usually rather strongly, arcuate at middle, bearing a well developed lobe which is .10 to .13mm long in all but 2 specimens studied. The median lobes of these specimens (length 10 and 10.5mm) measured .08mm. The median lobe in *C. ludificata* is highly variable, ranging from absent to .07mm long, the upper limit being represented by 2 specimens measuring 13 and 13.5mm. It is feebly developed (.03mm or less) in 54% of the specimens studied. Fisher (1942) did not mention any variability in this character, simply redescribing the type ". . . without a distinct median lobe." Fortunately this caused no confusion in his key, due to the (then) unique antennal characteristic of *C. ludificata*. However, it should be mentioned that the outer antennal segments are considerably wider in the male.

I take great pleasure in naming this beetle after Dr. W. F. Barr, who has done so much to further my interests and endeavors in the field of entomology.

LITERATURE CITED

- FISHER, WARREN S. 1942. A revision of the North American species of buprestid beetles belonging to the tribe Chrysobothrini. USDA Misc. Publ. 470:1-274; 126 Fig.

ECOLOGICAL NOTES ON *CYMINDIS NEGLECTA* HALDEMAN (COLEOPTERA: CARABIDAE)

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In Quebec, *Cymindis neglecta* is found under hardwood trees and bushes, on moderately moist, often gravelly ground, among dead leaves. Other associated carabids are: *Agonum retractum* LeConte, *Anisodactylus lugubris* Dejean, *Olisthopus parmatus* Say, and *Pterostichus pensylvanicus* LeConte. Lindroth (1969, Ground-beetles of Canada and Alaska, 6:945-1192) does not record the ecology of this species.